APPENDIX 14—BEST MANAGEMENT PRACTICES FOR LAND USES AND CONSERVATION MEASURES FOR FEDERALLY LISTED SPECIES

Best management practices (BMPs) are those land and resource management techniques determined to be the most effective and practical means of maximizing beneficial results and minimizing conflicts and adverse environmental impacts of management actions. BMPs could include, but are not limited to, structural and nonstructural controls, specific operations, and maintenance procedures. BMPs can be applied before, during, and after activities to reduce or eliminate adverse environmental impacts. BMPs are not one-size-fits-all solutions. BMPs should be matched and adapted through interdisciplinary analysis to determine which management practices would be necessary to meet the goals and objectives in the Resource Management Plan (RMP). The actual practices and mitigation measures which are best for a particular site are evaluated through the site-specific National Environmental Policy Act (NEPA) process and vary to accommodate unique, site-specific conditions and local resource conditions.

BMPs described in this appendix are designed to assist in achieving the RMP objectives. These guidelines could apply, where appropriate, to all use authorizations, including projects initiated by the Bureau of Land Management (BLM). BMPs are dynamic, and should not be interpreted as specific direction at the same level as the RMP decisions. BMPs are selected and implemented as necessary, based on site-specific conditions, to meet resource objectives for specific management actions.

This appendix does not provide an exhaustive list of BMPs. Additional BMPs may be identified during an interdisciplinary process when evaluating site-specific management actions. Implementation and effectiveness of BMPs needs to be monitored to determine whether the practices are achieving RMP goals and objectives. Adjustments could be made as necessary to ensure RMP goals and objectives are met, as well as to conform with changes in BLM regulations, policy, direction, or new scientific information. In addition, applicants can suggest alternate conditions that could accomplish the same result.

Because the management of environmental impacts is an ongoing process, continual refinement of BMP design is necessary. This process can be described in these five steps: (1) selection of design of a specific BMP; (2) application of the BMP; (3) monitoring; (4) evaluation; and (5) feedback. Data gathered through monitoring is evaluated and is used to identify changes needed in BMP design, application, or in the monitoring program.

BMPs have been developed and utilized by numerous energy companies and State and Federal agencies throughout the nation. The BLM and other agencies are continually gathering and developing BMPs and sharing them, allowing for the application of years of experience. Development and sharing of BMPs represents a commitment to the idea that smart planning and responsible follow-through manage and in some cases reduce impacts to resources, both now and in the future. The BMPs developed by other agencies could be considered in addition to those identified in this document. Some of these other BMPs are contained in the following documents and websites:

- *Utah's Forest Water Quality Guidelines: A Practical User's Guide for Landowners, Loggers, and Resource Managers* (State of Utah, Department of Natural Resources, Division of Forestry, Fire and State Lands) – as of September 2007, an electronic version of this document was available at http://extension.usu.edu/forestry/Management/UtFWQGuide/Assets/PDFDocs/UFWQGBOO.PDF

- *Coalbed Methane Best Management Practices: A Handbook – 2006 Update* (Western Governors' Association) – as of September 2007, electronic version of this document was available at www.westgov.org/wga/initiatives/coalbed/.
- *Low-Volume Roads Engineering Best Management Practices Field Guide* (U.S. Forest Service) – as of September 2007, electronic version of this document was available at www.blm.gov/bmp/field%20guide.htm.
- *Water-Road Interaction Technology Series Documents* (U.S. Forest Service) – as of September 2007, electronic versions of these documents were available at www.stream.fs.fed.us/water-road/.
- *National Menu of Stormwater Best Management Practices* (U.S. Environmental Protection Agency) – as of September 2007, electronic versions of these documents were available at http://cfpub.epa.gov/npdes/stormwater/menuofbmps/index.cfm.
- *Technical Information Sheets: Specific and Detailed BMP Guidance* (Bureau of Land Management) – as of September 2007, electronic version of this document was available through hyper-links located at www.blm.gov/bmp/Technical_Information.htm.
- *Surface Operating Standards and Guidelines for Oil and Gas Exploration and Development: The Gold Book* (Bureau of Land Management) – as of September 2007, electronic version of this document was available through hyper-links located at www.blm.gov/bmp/Technical_Information.htm.

In addition, this appendix contains conservation measures identified jointly by the BLM and the U.S. Fish and Wildlife Service (USFWS) as needed to protect specific threatened or endangered species. These conservation measures are targeted to specific species and must be considered and applied as appropriate.

POTENTIAL BEST MANAGEMENT PRACTICES

Surface Disturbing Activities

- Areas subject to surface disturbance would be evaluated for the presence of cultural resources or values. This is usually accomplished through the completion of a cultural clearance. An on-the-ground inspection by a qualified archaeologist, historian or paleontologist is required. In cases where cultural resources are found, the preferred response would be to modify the proposed action to avoid the cultural resource (avoidance). If avoidance is not possible, actions would be taken to preserve the data or value represented by the cultural resource (mitigation).
- Areas subject to surface disturbance would be evaluated for the presence of threatened, endangered, or candidate animal or plant species. This is usually accomplished through the completion of a biological clearance. An on-the-ground inspection by a qualified biologist is required. In cases where threatened, endangered, or candidate species are affected, the preferred response would be to modify the proposed action to avoid species or their habitat (avoidance). If avoidance of a threatened, endangered, or candidate species or its habitat is not possible, a Section 7 consultation with the USFWS would be required, and a biological assessment would be prepared to recommend actions to protect the species or its habitat.
- Special design and reclamation measures may be required to protect scenic and natural landscape values. This may include transplanting trees and shrubs, mulching and fertilizing disturbed areas, use of low profile permanent facilities, and painting to minimize visual contrasts. Surface disturbing activities may be moved to avoid sensitive areas or to reduce the visual effects of the proposal.
- Above-ground facilities requiring painting should be designed to blend in with the surrounding environment.

- Reclamation should be implemented concurrent with construction and site operations to the fullest extent possible. Final reclamation actions shall be initiated within six months of the termination of operations unless otherwise approved in writing by the authorized officer.
- Fill material should be pushed into cut areas and up over back slopes. Depressions should not be left that would trap water or form ponds.

Mineral Exploration and Development

- Reduce impacts to wildlife and visual resources by applying the following, as appropriate:
  - Directional drilling of oil and gas wells
  - Drilling of multiple wells from a single pad
  - Closed drilling systems
  - Cluster development
  - Belowground wellheads
  - Remote well monitoring
  - Piping of produced liquids to centralized tank batteries off-site to reduce traffic to individual wells
  - Transportation planning (e.g., to reduce road density and traffic volumes)
  - Compensatory mitigation
  - Noise reduction techniques and designs
  - Installation of raptor anti-perch devices in greater sage grouse habitat
  - Monitoring of wildlife populations during drilling operations
  - Avoidance of human activity between 8:00 p.m. and 8 a.m. from March 1 through May 15 within one-quarter mile of the perimeter of occupied sage grouse leks
  - Onsite bioremediation of oil field wastes and spills
  - Removal of trash, junk, waste, and other materials not in current use
- Reclaim all disturbed surface areas promptly, performing concurrent reclamation as necessary, and minimize the total amount of all surface disturbance.
- All surface soil should be stripped prior to conducting operations, stockpiled, and reapplied during reclamation, regardless of soil quality. Minimize the length of time soil remains in stockpiles and the depth or thickness of stockpiles.
- Strip and separate soil surface horizons where feasible and reapply in proper sequence during reclamation.
- Establish vegetation cover on soil stockpiles that are to be in place longer than one year.
- Construct and rehabilitate temporary roads to minimize total surface disturbance, consistent with intended use.
- Consider temporary measures such as silt fences, straw bales, or mulching to trap sediment in sensitive areas until reclaimed areas are stabilized with vegetation.
- Reshape to the approximate original contour all areas to be permanently reclaimed, providing for proper surface drainage.

Road Design and Maintenance

- Access roads should be kept to a minimum and used only when necessary.
- Design roads to minimize total disturbance, to conform with topography, and to minimize disruption of natural drainage patterns.

- Locate roads on stable terrain such as ridgetops, natural benches, and flatter transitional slopes near ridges and valley bottoms and moderate sideslopes and away from slumps, slide prone areas, concave slopes, clay beds, and where rock layers dip parallel to the slope. Locate roads on well drained soil types; avoid wet areas.
- Construct roads for surface drainage by using outslopes, crowns, grade changes, drain dips, waterbars and/or insloping to ditches as appropriate. Maintain drain dips, waterbars, road crown, insloping and outsloping, as appropriate, during road maintenance. Grade roads only as necessary.
- Sloping the road base to the outside edge for surface drainage is normally recommended for local spurs or minor collector roads where low traffic volume and lower traffic speeds are anticipated. This is also recommended in situations where long intervals between maintenance will occur and where minimum excavation is wanted. Outsloping is not recommended on steep slopes. Sloping the road base to the inside edge is an acceptable practice on roads with steep sideslopes and where the underlying soil formation is very rocky and not subject to appreciable erosion or failure.
- Crown and ditching is recommended for arterial and collector roads where traffic volume, speed, intensity and user comfort are considerations. Recommended gradients range from 0 to 15% where crown and ditching may be applied, as long as adequate drainage away from the road surface and ditch lines is maintained.
- In soil types with a low sand component, construct roads when soils are dry and not frozen, if possible. When these types of soils or road surfaces become saturated to a depth of three inches, BLM authorized activities should be limited or cease unless otherwise approved by the authorized officer.
- Retain vegetation between roads and streams to filter runoff caused by roads.
- Use culverts that pass, at a minimum, a 50-year storm event and/or have a minimum diameter of 13 inches for permanent stream crossings and a minimum diameter of 18 inches for road cross-drains.
- Strip and stockpile topsoil ahead of construction of new roads, if feasible. Reapply soil to cut and fill slopes prior to revegetation.
- Existing roads should be utilized whenever possible rather than constructing new road systems.

Right-of-Way and Utility Corridors

- Rights-of-way and utility corridors should use areas adjoining or adjacent to previously disturbed areas whenever possible.
- Disturbed areas within road rights-of-way and utility corridors should be stabilized by vegetation practices designed to hold soil in place and minimize erosion. Vegetation cover should be reestablished to increase infiltration and provide additional protection from erosion.
- Sediment barriers should be constructed when needed to slow runoff, allow deposition of sediment, and prevent transport from the site. Straining or filtration mechanisms may also be employed for the removal of sediment from runoff.

Noxious Weed Management

- In order to reduce the potential for the introduction of noxious weeds, all equipment will be cleaned off, by pressure washing, prior to operating on BLM lands. Removal of all dirt, grease, and plant parts that may carry noxious weed seeds or vegetative parts is required and may be accomplished with a pressure hose.

- All seed, hay, straw, mulch, or other vegetation material transported and used on public land weed free zones for site stability, rehabilitation or project facilitation should be certified by a qualified Federal, State, or county officer as free of noxious weeds and noxious weed seed.

Reducing Impacts to Visual Resource Management Class II and Class III Areas

- Bury distribution power lines and flow lines in or adjacent to access roads.
- Use repetition of elements of form, line, color, and texture to blend facilities with the surrounding landscape.
- Paint all above-ground structures not requiring safety coloration an environmental color two shades darker than the surrounding environment.
- Reclaim and recontour all disturbed areas, including access roads, to the original contour or a contour that blends with the surrounding topography.
- Avoid facility placement on steep slopes, ridge tops, and hilltops.
- Reclaim unused well pads within one year.

Developed Recreation

- Construct recreation sites and provide appropriate sanitation facilities to minimize impacts to resource values, maximize public health and safety, and minimize user conflicts related to approved activities and access within an area as appropriate.
- Use public education and/or physical barriers (such as rocks, posts, vegetation) to direct or preclude uses and to minimize impacts to resource values.

Riparian/Wetland Areas

- Avoid locating roads, trails and landings in wetlands.
- Locate, identify, and mark riparian management areas during design of projects that may cause adverse impacts to riparian management areas.
- Keep open water free from slash.
- Avoid equipment operation in areas of open water, seeps and springs.
- Utilize low ground pressure equipment (floatation tires or tracked) as necessary to minimize rutting and compaction.

Water Developments

- Actual work in springs and stream beds will be done by hand where possible. If machinery is needed in these areas, it will be selected to minimize disturbance.
- After construction of spring head boxes, troughs, pipelines, and well sites, the areas will be cleaned up and refuse removed.
- Cuts, fills, and excavations will be dressed and seeded to blend with surroundings. Pipelines will be buried where possible.
- Original water sources will be protected, fenced if required, and an off-stream watering supply will be provided near the site.
- Size of storage tanks and troughs will be designed to accommodate expected needs of livestock and wildlife using each source.

- Water will be left at the site for wildlife. Wells will be cased to prevent cave-ins and well sites will be fenced.
- Storage structures will be designed to provide water for wildlife. Drinking ramps will be installed and heights will not prohibit young wildlife from obtaining water.

Utah BLM is committed to the conservation of Federally-listed species. Pursuant to the Endangered Species Act (ESA), this means that BLM will endeavor to use necessary methods and procedures to improve the status of Federally-listed species and their habitats to a point where the provisions of the ESA are no longer necessary. This includes ensuring that BLM actions requiring permits or approvals are consistent with the objectives of approved recovery plans for listed species.

Conservation measures are part of the programmatic Section 7 consultation with the USFWS. BLM, in coordination with USFWS developed the following list of species-specific conservation measures for activities that will be implemented under this RMP. All implementation proposals potentially impacting listed species will consider these conservation measures. Incorporating these measures will help the BLM meet the standard of *"may affect, but not likely to adversely affect"* for species listed under the ESA. Where BLM determines that deviation, modification or waiver of these conservation measures is prudent and necessary, early coordination and Section 7 consultation with USFWS will be necessary. BLM will reinitiate Section 7 consultation at the project level, as necessary, to ensure proper management of listed species.

Conservation measures were developed for the following listed species inhabiting (or potentially inhabiting) lands managed by the Richfield Field Office (RFO):

- Wright fishhook cactus (*Sclerocactus wrightiae*)
- San Rafael and Winkler cacti *(Pediocactus spp.)*
- Maguire daisy *(Erigeron maguirei)*
- Last chance townsendia *(Townsendia aprica)*
- Barneby Reed-Mustard *(Schoenocrambe barnebyi)*
- Bald eagle *(Haliaeetus leucocephalus)*
- Colorado River endangered fish
    - Colorado pikeminnow *(Ptychocheilus lucius)*
    - Humpback chub *(Gila cypha)*
    - Bonytail chub *(Gila elegans)*
    - Razorback sucker *(Xyrauchen texanus)*
- Mexican spotted owl (*Strix occidentalis lucida*)
- Utah prairie dog (*Cynomys parvidens*)
- Southwestern willow flycatcher (*Empidonax trailii extimus*)

Wright Fishhook Cactus (*Sclerocactus wrightiae*)

Conservation Measures

The following conservation measures provide guidance for avoiding, minimizing, or reducing potential adverse impacts to the Wright fishhook cactus from implementing actions authorized in this resource management plan. This list is not all-inclusive. Additional conservation measures, or other modified versions of these measures, may be applied for any given BLM-authorized activity upon further analysis, review, coordination efforts, and/or appropriate levels of Section 7 consultation with the USFWS.

1. Prior to approving surface disturbing activities in Wright fishhook cactus habitat, survey for the presence of the species in potentially affected areas following established protocols.

2. Use appropriate avoidance, protection, and/or mitigation measures to manage potential impacts of similar, subsequent projects. Measures include, but are not be limited to:
   a) Stabilizing soils to minimize or avoid impacts related to soil erosion;
   b) Marking/flagging of suitable and/or occupied habitat (including predetermined buffers) prior to development to avoid trampling by crew members or equipment during disturbance related activities; and
   c) Requiring project proponents to conduct surveys and monitoring actions using BLM-approved specialists to document impacts to populations and individuals.

3. Continue documenting new populations of Wright fishhook cactus as they are encountered.

4. To assist and support recovery efforts, minimize or avoid surface disturbances in habitats that support the species.

5. Encourage and assist project proponents in developing and designing their proposed actions to avoid directly disturbing populations or individuals. Designs should consider water flow, slope, appropriate buffer distances, possible fencing needs, and pre-activity flagging of sensitive areas that are planned for avoidance.

6. Consider emergency off-highway vehicle (OHV) area or route closures or other OHV restrictions needed to protect, conserve, and recover the species.

7. In areas where recreational uses are identified as threats to populations of the species, consider developing new recreational facilities and/or opportunities that direct dispersed recreational uses away from habitat, especially occupied habitat.

8. Cultural and paleontological survey/recovery technicians (e.g., archaeologists and/or paleontologists), working in the vicinity of known populations would be educated in the identification of listed species in order to avoid inadvertent trampling or removal during survey, mapping, or excavation of cultural or paleontological resources.

9. Survey areas of viable habitat, in the vicinity of populations within areas being considered for prescribed burning, according to established protocols for new or undocumented populations of the species.

10. Lands being considered for land tenure adjustments that contain suitable habitat for the species would be surveyed, according to established protocols, prior to approval of the land tenure adjustment action. Lands supporting populations would not be disposed of unless it is determined that the action would not threaten the survival and recovery of the species in accordance with the ESA and BLM Guidance and Policy Manual 6840 – Special Status Species Management.

11. Encourage the avoidance of key habitats during livestock herding and trailing activities on public lands. Key habitats are those that are deemed necessary for the conservation of the species including, but not limited to, designated critical habitat and other occupied or unoccupied habitats considered important for species survival and recovery as determined in coordination with the USFWS.

12. As funding permits, consider research opportunities to determine whether the mortality to recruitment ratio of 2.5 to 1, observed by Kass (2001) persists within studied populations. These observed ratios

have resulted in the decline and ultimate loss of some populations. Therefore, future research might study how widespread the decline may be. To accomplish this, several populations should be selected that represent a range of habitats, locations, proximity to potential threats and relative population sizes. Populations should be monitored for changes in number and overall condition to determine whether these observed mortality rates are characteristic of the species throughout its range.

San Rafael and Winkler Cacti (*Pediocactus spp.)*

Conservation Measures

The following conservation measures provide guidance for avoiding, minimizing, or reducing potential adverse impacts to the San Rafael cactus (*Pediocactus despainii*) and Winkler cactus (*Pediocactus winkleri*) from implementing actions authorized in this resource management plan. This list is not all-inclusive. Additional conservation measures, or other modified versions of these measures, may be applied for any given BLM-authorized activity upon further analysis, review, coordination efforts, and/or appropriate levels of Section 7 consultation with the USFWS.

1. Prior to allowing surface disturbing activities in habitat for these species, conduct presence/absence surveys of potentially affected areas in accordance with established protocols.

2. Use appropriate avoidance, protection and mitigation measures to manage potential impacts of similar subsequent projects. These measures include, but are not be limited to:
   a) Stabilizing soils to minimize or avoid impacts related to soil erosion;
   b) Marking/flagging of suitable and/or occupied habitat (including predetermined buffers) prior to development to avoid trampling by crew members or equipment during disturbance-related activities; and
   c) Requiring project proponents to conduct surveys and monitoring actions using BLM-approved specialists to document population effects and individual impacts.

3. Continue to document new populations of San Rafael and Winkler cacti as they are encountered.

4. To assist and support recovery efforts, minimize or avoid surface disturbances in habitats that support the species.

5. Encourage and assist project proponents in development and design of their proposed actions in order to avoid direct disturbance to populations or individuals where feasible. Designs should consider water flow, slope, appropriate buffer distances, possible fencing needs, and pre-activity flagging of sensitive areas that are planned for avoidance.

6. Consider emergency off-highway vehicle area closures or other OHV restrictions needed to protect, conserve, and recover the species.

7. In areas where dispersed recreational uses are identified as threats to populations of the species, consider the development of new recreational facilities/opportunities that direct dispersed recreational use away from habitat, especially occupied habitat.

8. Cultural and paleontological survey/recovery technicians (e.g., archaeologists and paleontologists) working in the vicinity of known populations would be educated in the identification of listed species in order to avoid inadvertent trampling or removal during survey, mapping, or excavation of cultural or paleontological resources.

9. Survey areas of viable habitat, in the vicinity of populations within areas being considered for prescribed burning, according to established protocols for new or undocumented populations of the species.

10. Lands being considered for land tenure adjustments that contain suitable habitat for the species would be surveyed, according to established protocols, prior to approval of the land tenure adjustment action. Lands supporting populations would not be disposed of unless it is determined that the actions would not threaten the survival and recovery of the species in accordance with the ESA and BLM Guidance and Policy Manual 6840 – Special Status Species Management.

11. Encourage the avoidance of key habitats during livestock herding and trailing activities on public lands. Key habitats are those deemed necessary for conserving the species including, but not limited to, designated critical habitat and other occupied or unoccupied habitats considered important for the species survival and recovery as determined in coordination with the USFWS.

12. As funding allows, develop a travel management plan for areas of occupied and potential habitat for San Rafael and Winkler cactus.

13. As funding allows, monitor and evaluate the effectiveness of moving topsoil with the intention of transferring seed banks of San Rafael and Winkler cacti to mitigate population losses from development activities.

Maguire Daisy (*Erigeron maguirei*)

Conservation Measures

The following conservation measures provide guidance for avoiding, minimizing, or reducing potential adverse impacts to the Maguire Daisy (*Erigeron maguirei*) from implementing actions authorized in this resource management plan. This list is not all-inclusive. Additional conservation measures, or other modified versions of these measures, may be applied for any given BLM-authorized activity upon further analysis, review, coordination efforts, and/or appropriate levels of Section 7 consultation with the USFWS.

1. Prior to approving surface disturbing activities in species habitat, survey for the presence of the species in potentially affected areas in accordance with established protocols.

2. Use appropriate avoidance, protection, and mitigation measures to manage potential impacts of similar, subsequent projects. Measures include, but are not be limited to:
   a) Stabilizing soils to minimize or avoid impacts related to soil erosion;
   b) Marking/flagging of suitable and/or occupied habitat (including predetermined buffers) prior to development to avoid trampling by crew members or equipment during disturbance-related activities; and
   c) Requiring project proponents to conduct surveys and monitoring actions using BLM-approved specialists to document impacts to populations and individuals.

3. Continue documenting new populations of Maguire daisy as they are encountered.

4. To assist and support recovery efforts, minimize or avoid surface disturbances in habitats that support the species.

5. Encourage and assist project proponents to develop and design their proposed actions to avoid directly disturbing populations or individuals. Designs should consider water flow, slope, appropriate buffer distances, possible fencing needs, and pre-activity flagging of sensitive areas that are planned for avoidance.

6. Consider emergency off-highway vehicle area closures or other OHV restrictions needed to protect, conserve, and recover the species.

7. In areas where recreational uses are identified as threats to populations of the species, consider developing new recreational facilities and/or opportunities that would direct dispersed recreational uses away from habitat, especially occupied habitat.

8. Cultural and paleontological survey/recovery technicians (e.g., archaeologists and paleontologists) working in the vicinity of known populations would be educated in the identification of listed species in order to avoid inadvertent trampling or removal during survey, mapping, or excavation of cultural or paleontological resources.

9. Survey areas of viable habitat, in the vicinity of populations within areas being considered for prescribed burning, according to established protocols for new or undocumented populations of the species.

10. Lands being considered for land tenure adjustments that contain suitable habitat for the species would be surveyed, according to established protocols, prior to approval of the land tenure adjustment action. Lands supporting populations would not be disposed of unless it is determined that the action would not threaten the survival and recovery of the species in accordance with the ESA and BLM Guidance and Policy Manual 6840 – Special Status Species Management.

11. Encourage the avoidance of key habitats during livestock herding and trailing activities on public lands. Key habitats are those that are deemed necessary for the conservation of the species, including, but not limited to designated critical habitat and other occupied or unoccupied habitats considered important for the species survival and recovery as determined in coordination with the USFWS.

Last Chance Townsendia (*Townsendia aprica*)

Conservation Measures

The following conservation measures provide guidance for avoiding, minimizing, or reducing potential adverse impacts to the Last Chance townsendia (*Townsendia aprica*) from implementing actions authorized in this resource management plan. This list is not all-inclusive. Additional conservation measures, or other modified versions of these measures, may be applied for any given BLM-authorized activity upon further analysis, review, coordination efforts, and/or appropriate levels of Section 7 consultation with the USFWS.

1. Prior to approving surface disturbing activities in species habitat, survey for the presence/absence of the species in potentially affected areas in accordance with established protocols.

2. Use appropriate avoidance, protection, and/or mitigation measures to manage potential impacts of similar, subsequent projects. Measures include, but are not be limited to:
   a) Stabilizing soils to minimize or avoid impacts related to soil erosion;

b) Marking/flagging of suitable and/or occupied habitat (including predetermined buffers) prior to development to avoid trampling by crew members or equipment during disturbance-related activities; and
c) Requiring project proponents to conduct surveys and monitoring actions using BLM-approved specialists to document impacts to populations and individuals.

3. Continue to document new populations of Last Chance townsendia (*Townsendia aprica*) as they are encountered.

4. To assist and support recovery efforts, minimize or avoid surface disturbances in habitats that support the species.

5. Encourage and assist project proponents to develop and design their proposed actions to avoid directly disturbing populations or individuals. Designs should consider water flow, slope, appropriate buffer distances, possible fencing needs, and pre-activity flagging of sensitive areas that are planned for avoidance.

6. Consider emergency off-highway vehicle area closures or other OHV restrictions needed to protect, conserve, and recover the species.

7. In areas where recreational uses are identified as threats to populations of the species, consider developing new recreational facilities and/or opportunities that would direct dispersed recreational uses away from habitat, especially occupied habitat.

8. Cultural and paleontological survey/recovery technicians (e.g., archaeologists and paleontologists) working in the vicinity of known populations would be educated in the identification of listed species in order to avoid inadvertent trampling or removal during survey, mapping, or excavation of cultural or paleontological resources.

9. Survey areas of viable habitat, in the vicinity of populations within areas being considered for prescribed burning, according to established protocols for new or undocumented populations of the species.

10. Lands being considered for land tenure adjustments that contain suitable habitat for the species would be surveyed, according to established protocols, prior to approval of the land tenure adjustment action. Lands supporting populations would not be disposed of unless it is determined that the action would not threaten the survival and recovery of the species in accordance with the ESA and BLM Guidance and Policy Manual 6840 – Special Status Species Management.

11. Encourage the avoidance of key habitats during livestock herding and trailing activities on public lands. Key habitats are those that are deemed necessary for the conservation of the species, including, but not limited to designated critical habitat and other occupied or unoccupied habitats considered important for the species survival and recovery as determined in coordination with the USFWS.

Barneby Reed-mustard *(Schoenocrambe barnebyi)*

Conservation Measures

The following conservation measures provide guidance for avoiding, minimizing or reducing potential adverse impacts to the Barneby reed-mustard *(Schoenocrambe barnebyi)* from implementing actions

authorized in this resource management plan. This list is not all-inclusive. Additional conservation measures, or other modified versions of these measures, may be applied for any given BLM-authorized activity upon further analysis, review, coordination efforts, and/or appropriate levels of Section 7 consultation with the USFWS.

1. Prior to approving surface disturbing activities in species habitat, survey for the presence of the species in potentially affected areas in accordance with established protocols.

2. Use appropriate avoidance, protection, and mitigation measures to manage potential impacts of similar, subsequent projects. Measures include, but are not be limited to:
   a) Stabilizing soils to minimize or avoid impacts related to soil erosion;
   b) Marking/flagging of suitable and/or occupied habitat (including predetermined buffers) prior to development to avoid trampling by crew members or equipment during disturbance-related activities; and
   c) Requiring project proponents to conduct surveys and monitor actions using BLM-approved specialists to document impacts to populations and individuals.

3. Continue to document new populations of each mustard species as they are encountered.

4. To assist and support recovery efforts, minimize or avoid surface disturbances in habitats that support the species.

5. Encourage and assist project proponents to develop and design their proposed actions to avoid directly disturbing populations or individuals. Designs should consider water flow, slope, appropriate buffer distances, possible fencing needs, and pre-activity flagging of sensitive areas that are planned for avoidance.

6. Consider emergency off-highway vehicle area closures or other OHV restrictions needed to protect, conserve, and recover the species.

7. In areas where recreational uses are identified as threats to populations of the species, consider developing new recreational facilities and/or opportunities that would direct dispersed recreational uses away from habitat, especially occupied habitat.

8. Cultural and paleontological survey/recovery technicians (e.g., archaeologists and paleontologists) working in the vicinity of known populations would be educated in the identification of listed species in order to avoid inadvertent trampling or removal during survey, mapping, or excavation of cultural or paleontological resources.

9. Survey areas of viable habitat, in the vicinity of populations within areas being considered for prescribed burning, according to established protocols for new or undocumented populations of the species.

10. Lands being considered for land tenure adjustments that contain suitable habitat for the species would be surveyed, according to established protocols, prior to approval of the land tenure adjustment action. Lands supporting populations would not be disposed of unless it is determined that the action would not threaten the survival and recovery of the species in accordance with the ESA and BLM Guidance and Policy Manual 6840 – Special Status Species Management.

11. Encourage the avoidance of key habitats during livestock herding and trailing activities on public lands. Key habitats are those that are deemed necessary for the conservation of the species, including,

but not limited to designated critical habitat and other occupied or unoccupied habitats considered important for the species survival and recovery as determined in coordination with the USFWS.

Bald Eagle *(Haliaeetus leucocephalus)*

Conservation Measures

The following conservation measures provide guidance for avoiding, minimizing or reducing potential adverse impacts to the bald eagle (*Haliaeetus leucocephalus*) from implementing actions authorized in this resource management plan. This list is not all-inclusive. Additional conservation measures, or other modified versions of these measures, may be applied for any given BLM-authorized activity upon further analysis, review, coordination efforts, and/or appropriate levels of Section 7 consultation with the USFWS.

1. Implement restrictions on all authorized (permitted) activities that may adversely impact bald eagles, their breeding habitat, roosting sites, or known winter concentration areas to avoid or minimize the impacts. Measures were adapted from guidance published in the Utah Field Office Guidelines for Raptor Protection from Human and Land Use Disturbances (USFWS 2002), and from coordination between BLM and USFWS. Measures include, but are not limited to seasonal and/or daily timing limitations and/or spatial buffers as follows:
   a) Temporary activities[3] or habitat alterations that could disturb nesting bald eagles would be restricted from January 1 to August 31 within one mile of nest sites. Exceptions would be considered where no nesting behavior is initiated prior to June 1.
   b) Temporary activities or habitat alterations that could disturb bald eagles would be restricted within one-half mile of known eagle winter roost areas from November 1 to March 31. Additionally, require daily activities approved through subsequent consultation within these spatial buffers to start after 9 a.m. and terminate at least one hour before sunset to ensure that bald eagles using these roosts have the opportunity to vacate their roost in the morning and return undisturbed in the evening.
   c) Allow no permanent[4] structures within one mile of bald eagle nest sites or within one-half mile of bald eagle winter concentration areas (roosts).
   d) Where activities are authorized within breeding habitats or known winter concentration areas, monitoring efforts would document what, if any, impacts occur during project implementation and to what extent the species was affected. Utilize the monitoring results in designing and implementing future projects as part of the adaptive management process.

2. For all project-related survey and monitoring actions:
   a) Provide monitoring reports to the RFO within 15 days of completion of surveys or monitoring efforts. Reports must follow BLM-specified formats for written and automated databases.
   b) Any detection of bald eagle presence during survey or monitoring efforts must be reported to the authorized officer within 48 hours of detection.

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[3] *Temporary activities are defined as those that are completed prior to the start of the following raptor breeding season, leaving no permanent structures and resulting in no permanent habitat loss.*

[4] *Permanent activities continue for more than one breeding season and/or cause a loss of habitat or displace individuals through disturbance (e.g., creation of a permanent structure including but not limited to well pads, roads, pipelines, electrical power line).*

3. Conduct appropriately timed surveys in suitable bald eagle nesting habitat or identified concentration areas in accordance with approved protocols prior to any activities that may disturb bald eagles. Surveys would only be conducted by BLM-approved individuals or personnel.

4. In coordination with cooperating agencies and/or partners (e.g., UDWR, USFWS, etc.), verify annual status (active vs. inactive) of all known bald eagle nests and other identified eagle concentration areas on BLM-administered lands.

5. When project proposals that may affect threatened and endangered species are received, coordinate with the USFWS at the earliest possible date so that the USFWS can provide conservation measures needed to minimize or avoid impacts.

6. BLM-administered lands within one mile of bald eagle nests or identified communal winter roosts should be retained in Federal ownership. If it is imperative that these lands be transferred out of public ownership, make every effort to include conservation easements in conveyance documents or seek voluntary conservation restrictions to protect the bald eagles and support their conservation.

7. Notify proponents of BLM-authorized actions that roadside carrion can attract foraging bald eagles and potentially increase the risk of vehicle collisions with eagles feeding on carrion. When carrion is found on roads, notify appropriate agency for its removal.

8. Require power lines to be constructed to standards and guidelines identified by the Avian Protection Plan (APP) Guidelines (USFWS and APLIC 2005).

9. Provide educational information to project proponents and the general public pertaining to the following topics:
   a) Appropriate vehicle speeds and the associated benefit of reduced vehicle collisions with wildlife
   b) Use of lead shot (particularly over water bodies)
   c) Use of lead fishing weights
   d) General ecological awareness of habitat disturbance

10. Since bald eagles often prey upon aquatic species, periodically review water quality records (e.g., UDEQ, UDWR, USGS) from monitoring stations at or near important bald eagle habitats (e.g., nests, roost, concentration areas) on BLM-administered lands for conditions that could adversely affect eagles or their prey. If water quality problems are identified, contact the appropriate jurisdictional entity to cooperatively monitor the condition and/or take corrective action.

Colorado River Endangered Fishes

Colorado Pikeminnow (*Ptychocheilus lucius*), Humpback Chub (*Gila cypha*), Bonytail Chub (*Gila elegans*), and Razorback Sucker (*Xyrauchen texanus*)

Conservation Measures

The following conservation measures provide guidance for avoiding, minimizing or reducing potential adverse impacts to the Colorado River Fishes [Colorado pikeminnow (*Ptychocheilus lucius*), humpback chub (*Gila cypha*), bonytail chub (*Gila elegans*), and razorback sucker (*Xyrauchen texanus*)] from implementing actions authorized in this resource management plan. This list is not all-inclusive. Additional conservation measures, or other modified versions of these measures, may be applied for any

given BLM-authorized activity upon further analysis, review, coordination efforts, and/or appropriate levels of Section 7 consultation with the USFWS.

1. As a condition for approving projects, require proponents to monitor site-specific project impacts and report on the progress of each project. Reports should be submitted annually to the USFWS' Utah Field Office, beginning after the first full year of implementation. Include in the reports:
   a) Any unforeseen, direct or indirect adverse impacts resulting from the project;
   b) Estimates of water depletion or water impacts in relation to those estimated in the original project-level consultation in order to inform the USFWS of the need to reinitiate Section 7 consultation; and
   c) Results of periodic evaluations of the effectiveness of site-specific terms and conditions that were part of the formal consultation process. Include items such as assessments of whether implementation of each site-specific project is consistent with that described in the biological assessment and whether the project has complied with permit terms and conditions.

2. Notify the USFWS immediately of any unforeseen impacts detected during project implementation. Immediately stop any action contributing to the introduction of toxic materials or causing fish mortality until the situation is remedied. If investigative monitoring demonstrates that the source of fish mortality is not related to the authorized activity, the activity may proceed only after notifying the USFWS.

3. Protect unoccupied, suitable habitat areas for future management actions associated with the reintroduction, relocation, or recovery of the endangered Colorado River Fish.
   a) Avoid impacting habitat considered most representative of prime suitable habitat for these species.
   b) Restrict surface disturbing activities within one-quarter mile of the channel centerline of the Colorado and Green rivers.
   c) Avoid surface disturbing activities within floodplains or riparian areas unless there is no reasonable alternative or the activity would enhance riparian and aquatic values. If activities cannot be avoided in these areas, require mitigation efforts to maintain, restore, and/or improve riparian and aquatic conditions. If on-site conditions cannot be maintained, consider offsite mitigation strategies.

4. Ensure project designs minimize disturbance to fish populations and habitats. Designs should include:
   a) Protections against toxic spills into rivers and floodplains;
   b) Plans for reducing sedimentation;
   c) Plans for minimizing impacts to riparian vegetation;
   d) Plans for pre-activity flagging to avoid critical areas;
   e) Designs for stream-crossings that allow for adequate passage of fish; and
   f) Measures to avoid or minimize impacts on water quality at the 25-year frequency runoff.

5. Prior to approving surface disturbing activities, require consideration of specific principles to control erosion including:
   a) Conduct long-range transportation planning for large areas to ensure that roads will serve future needs. This will result in less total surface disturbance.
   b) Avoid, where possible, surface disturbance in areas with high erosion potential.
   c) Avoid mid-slope location of drill pads, headwalls at the source of tributary drainages, inner valley gorges, excessively wet slopes such as those near springs, and avoid areas where large cuts and fills would be required.

d) Design and locate roads to minimize roadway drainage areas and to avoid modifying the natural drainage areas of small streams.

6. Require, where technically and economically feasible, directional drilling or multiple wells from individual pads to reduce the amount of surface disturbance and eliminate drilling in riparian areas. Ensure that drilling does not intercept or degrade alluvial aquifers. Allow no drilling within 100 year floodplains that contain listed fish species or their designated critical habitats.

7. Implement *The Utah Oil and Gas Pipeline Crossing Guidance* (BLM National Science and Technology Center) or other applicable guidance, in designing and constructing oil and gas pipeline river and stream crossings.

8. In areas adjacent to 100-year floodplains, particularly in systems prone to flash flooding, analyze the risk for flash floods to impact facilities. Potential techniques may include the use of closed loop drilling and pipeline burial or suspension as necessary to minimize the potential for equipment damage and resultant leaks or spills.

9. Consider water depletions from any portion of the Upper Colorado River drainage basin above Lake Powell to adversely affect and adversely modify the critical habitat of these endangered fish species.

10. Design stream-crossings that are adequate for fish passage (if fish are present), have a minimum impact on water quality and, at a minimum, accommodate a 25-year frequency runoff.

Mexican Spotted Owl *(Strix occidentalis lucida)*

Conservation Measures

The following conservation measures provide guidance for avoiding, minimizing, or reducing potential adverse impacts to the Mexican spotted owl (*Strix occidentalis lucida*) from implementing actions authorized in this resource management plan. This list is not all-inclusive. Additional conservation measures, or other modified versions of these measures, may be applied for any given BLM-authorized activity upon further analysis, review, coordination efforts, and/or appropriate levels of Section 7 consultation with the USFWS.

1. Restrict authorized (permitted) activities that could adversely affect the Mexican spotted owl in identified protected activity centers (PACs), breeding habitat, or designated critical habitat, to reduce the potential for adverse impacts to the species. Restrictions and procedures have been adapted from guidance published in the USFWS Utah Field Office Guidelines for Raptor Protection from Human and Land Use Disturbances, and coordination between BLM and USFWS. Measures include:
   a) Require surveys, according to USFWS protocol, prior to allowing any disturbance that could potentially impact the Mexican spotted owl, unless current species occupancy and distribution information is complete and available. All surveys must be conducted by USFWS-certified personnel and approved by the BLM authorized officer.
   b) Assess habitat suitability for nesting and foraging using accepted habitat models in conjunction with field reviews. Apply the appropriate conservation measures (below) if project activities

occur within one-half mile of suitable owl habitat, dependent in part on if the action is temporary[5] or permanent[6].

c) For all temporary actions potentially impacting owls or suitable habitat:
   i) If action occurs entirely outside of the owl breeding season, and leaves no permanent structure or permanent habitat disturbance, allow action to proceed without an occupancy survey.
   ii) If action would occur during a breeding season, survey for owls prior to commencing activity. If owls are found, delay activity until after the breeding season.
   iii) Rehabilitate access routes created by a project by raking out scars, revegetating, and/or gating access points.

d) For all permanent actions that may impact owls or suitable habitat:
   i) Survey two consecutive years for owls according to established protocol prior to commencing activity.
   ii) If owls are found, allow no actions within one-half mile of identified nest site. If nest site is unknown, allow no activity within the designated PAC.
   iii) Avoid placing permanent structures within one-half mile of suitable habitat unless surveyed and not occupied.
   iv) Reduce noise emissions (e.g., use hospital-grade mufflers) to 45 dBA at one-half mile from suitable habitat, including canyon rims (Delaney *et al.* 1997). Determine placement of permanent noise-generating facilities by conducting a noise analysis to ensure noise does not encroach upon the half-mile buffer for suitable habitat, including canyon rims.
   v) Limit disturbances to and within suitable owl habitat by requiring vehicles to stay on designated routes.
   vi) Limit new access routes created by the project.

2. As a condition of approval (COA) on any project proposed within PACs, designated critical habitat, or within one-half mile of nests, notify project proponents of their responsibilities for rehabilitating temporary access routes and other temporary surface disturbances created by their project according to BLM standards and procedures or those determined in the project-specific Section 7 consultation.

3. Require monitoring of activities in designated critical habitat, PACs, or breeding habitats where there is a potential for take. If adverse impacts are observed in a manner or to an extent that was not considered in the project-specific Section 7 consultation, reinitiate consultation with USFWS.
   a) Monitor and document impacts to individuals and habitat during project construction and implementation. Document effectiveness of impact minimization and mitigation measures. Utilize monitoring results in the design and implementation of future projects as a tool of adaptive management.

4. For all survey and monitoring actions:
   a) Provide reports within 15 days of completing surveys or monitoring.
   b) Report any detection of Mexican spotted owls during surveying or monitoring to the authorized officer within 48 hours.

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[5] *Temporary activities are defined as those that are completed prior to the start of the following raptor breeding season, leaving no permanent structures and resulting in no permanent habitat loss.*

[6] *Permanent activities continue for more than one breeding season and/or cause a loss of owl habitat or displace owls through disturbances, e.g., creation of a permanent structure including but not limited to well pads, roads, pipelines, electrical power line.*

5. In designated critical habitat, ensure that any physical or biological factors (e.g., the primary constituent elements), as identified in determining and designating such habitat, remain intact during implementation of any authorized activities.

6. For all actions that "may adversely affect" the primary constituent elements in any suitable Mexican spotted owl habitat, implement measures to minimize habitat loss or fragmentation, including rehabilitating access routes created by projects, through means such as raking out scars, revegetating, gating access points, etc.

7. Where technically and economically feasible, use directional drilling to reduce surface disturbance and minimize or eliminate drilling in canyon habitats determined suitable for Mexican spotted owl nesting.

8. Prior to allowing surface disturbing activities in Mexican spotted owl PACs, breeding habitats, or designated critical habitat, consider measures to control erosion, including:
   a) Conduct long-range transportation planning for large areas to ensure that roads will serve future needs. This would result in less total surface disturbance.
   b) Avoid surface disturbances in areas with high erosion hazards to the greatest extent possible. Avoid mid-slope locations, headwalls at the source of tributary drainages, inner valley gorges, and excessively wet slopes such as those near springs. In addition, avoid areas where large cuts and fills would be required.
   c) Locate roads to minimize roadway drainage areas and to avoid modifying the natural drainage areas of small streams.

9. Project developments should be designed and located to avoid direct or indirect loss or modification of Mexican spotted owl nesting and/or roosting habitats.

10. Manage water produced by BLM-authorized actions to ensure riparian habitats are maintained or enhanced.

Utah Prairie Dog (*Cynomys parvidens*)

Conservation Measures

The following conservation measures provide guidance for avoiding, minimizing or reducing potential adverse impacts to the Utah prairie dog (*Cynomys parvidens*) from implementing actions authorized in this resource management plan. This list is not all-inclusive. Additional conservation measures, or other modified versions of these measures, may be applied for any given BLM-authorized activity upon further analysis, review, coordination efforts, and/or appropriate levels of Section 7 consultation with the USFWS.

1. Require surveys according to accepted protocols prior to approving surface disturbing activities unless species occupancy and distribution information is complete and current. Require surveys to be conducted by BLM-approved biologists. If species occurrence is verified, the project proponent may be required to modify operational plans, at the discretion of the authorized officer, to include additional, appropriate protection measures or practices for minimizing impacts to the Utah prairie dog and its habitat.

2. Restrict surface disturbing activities within one-half mile of active Utah prairie dog colonies when and where recommended by BLM biologists in coordination and consultation with USFWS.

3. Allow no permanent surface disturbances or facilities within one-half mile of potentially suitable Utah prairie dog habitat, as identified and mapped by the Utah Division of Wildlife Resources or BLM.

4. Unavoidable surface disturbing activities in Utah prairie dog habitat should only be conducted between April 1 and September 30 (the period when prairie dogs are most likely to be found above ground). Design projects to avoid direct disturbance to Utah prairie dog populations and habitat and to consider flow of water, slope, buffers, possible fencing, and pre-activity flagging of critical areas for avoidance.

5. Reclamation and restoration efforts in prairie dog habitat would be conducted using native seed unless otherwise specified in coordination with USFWS.

6. As funding allows, a comprehensive assessment locating and mapping OHV vehicle use areas that interface with Utah prairie dog populations and habitat would be completed in order to assist in managing and/or minimizing impacts from OHV use near known Utah prairie dog populations and habitat. Based on this information, take appropriate action to prevent OHV use in occupied territories.

7. Consider emergency off-highway vehicle area closures or other OHV restrictions in order to protect, conserve, and recover the species.

8. Where technically and economically feasible, require directional drilling or drilling of multiple wells from a single pad to reduce surface disturbances in Utah prairie dog habitat.

9. Consider fencing existing facilities (e.g., drill pads, tank batteries, and compressors), if needed, to protect equipment from burrowing activities. Consider the need for future surface disturbing activities at existing sites.

10. Provide educational information to project proponents and the general public pertaining to appropriate vehicle speeds and the associated benefits of reduced vehicle collisions with wildlife, and to improve general ecological awareness of habitat disturbance.

11. Require vehicles to be maintained in appropriate off-site facilities. Should it become necessary to perform vehicle or equipment maintenance on-site, do not allow these activities within identified Utah prairie dog colonies or within a 350-foot distance from colonies. Ensure that maintenance sites are not contaminated by fuels, motor oils, grease, etc. and such materials are contained and properly disposed of off-site. Spills of petroleum-based or other toxic materials must be cleaned up and removed immediately.

12. Coordinate with interested private and governmental agencies and landowners to identify opportunities for modifying land management practices that may be impacting the Utah prairie dog and its habitat.

13. Require that equipment and vehicles used within Utah prairie dog habitat be cleaned to prevent the spread of noxious weeds or other undesirable vegetation types.

Southwestern Willow Flycatcher (*Empidonax trailii extimus*)

Conservation Measures

The following conservation measures provide guidance for avoiding, minimizing or reducing potential adverse impacts to the Southwestern willow flycatcher (*Empidonax trailii extimus*) from implementing actions authorized in this resource management plan. This list is not all-inclusive. Additional conservation measures, or other modified versions of these measures, may be applied for any given BLM-authorized activity upon further analysis, review, coordination efforts, and/or appropriate levels of Section 7 consultation with the USFWS.

1. Require surveys prior to approving operations that "may adversely affect" Southwestern willow flycatcher unless species occupancy data and distribution information is complete and available. Surveys will only be conducted by BLM-approved personnel. If species occurrence is verified, the authorized officer may require project proponents to modify operational plans to include appropriate measures for minimizing adverse effects to the Southwestern willow flycatcher and its habitat.

2. Monitor authorized or casual use activities and, when and where necessary, restrict activities that "may adversely affect" the Southwestern willow flycatcher including, but not limited to, recreation, mining, and oil and gas activities. Incorporate monitoring results in the design and implementation of future projects.

3. Monitor the impacts of BLM-authorized projects determined "likely to adversely affect" the Southwestern willow flycatcher and report findings, including effectiveness of mitigation. Submit reports to the USFWS Utah Field Office by March 1 of each year. Include the following items in the report:
   a) Any unforeseen adverse effects resulting from activities of each site-specific project (may also require reinitiation of formal consultation);
   b) When and if any level of incidental take is approached (as allowed by separate Incidental Take Statements of site-specific formal Section 7 consultation efforts);
   c) When or if the level of anticipated take (as allowed by separate Incidental Take Statements from site-specific formal consultations) is exceeded; and
   d) Results of annual monitoring that evaluate the effectiveness of the reasonable and prudent measures or terms and conditions of the site-specific consultation.

4. Avoid granting activity permits or authorizing developments in Southwestern willow flycatcher habitat. Protect unoccupied, potential habitat to conserve it for future management actions associated with the recovery of the southwestern willow flycatcher.

5. Require that project designs incorporate measures to avoid direct disturbance to populations and suitable habitats. At a minimum, require consideration of water flows, slope, seasonal and spatial buffers, possible fencing, and pre-activity flagging of critical areas for avoidance.

6. Address illegal and unauthorized off-highway vehicle use and activity upon BLM-administered lands. In order to protect, conserve, and recover the Southwestern willow flycatcher in areas of heavy unauthorized use, temporary closures, or use restrictions beyond those which are already in place, may be imposed. As funding allows, complete a comprehensive assessment of off-highway vehicle use areas that interface with Southwestern willow flycatcher habitat. Use GIS to compare Southwestern willow flycatcher populations and off-highway vehicle use areas.

7. All surface disturbing activities should be restricted within a one-quarter mile of suitable riparian habitats and within one-half mile of suitable Southwestern willow flycatcher habitat.

8. Allow unavoidable ground disturbing activities in occupied habitat only:
   a) When preceded by a current survey;
   b) Between August 16 and April 30 (the period when Southwestern willow flycatcher are not likely to be breeding); and
   c) When monitored to ensure that adverse impacts to Southwestern willow flycatcher are minimized or avoided, and to document the success of project-specific mitigation/protection measures. Project-specific monitoring requirements must be identified.

9. Consider Southwestern willow flycatcher nesting periods when scheduling horse gathers in the vicinity of habitat.

10. Ensure that plans for water extraction and disposal are designed to avoid changes in the hydrologic regime that would likely result in loss or degradation of riparian habitat.

11. Native species would be preferred over non-native species for revegetation of habitat in disturbed areas.

12. Coordinate with other agencies and private landowners to identify voluntary opportunities for modifying current land management practices impacting the Southwestern willow flycatcher and its habitat.

13. Limit disturbances within suitable habitat by requiring vehicles to travel on designated routes.

14. Monitor ground-disturbing activities throughout the duration of the project to ensure that adverse impacts to Southwestern willow flycatcher are avoided. Document impacts to individuals or habitat during project construction and implementation. In addition, document effectiveness of impact minimization or mitigation measures. Consider monitoring results in the design and implementation of future projects.

15. Where technically and economically feasible, require directional drilling or multiple wells from the same pad to reduce the amount of surface disturbance and eliminate drilling in Southwestern willow flycatcher habitat.

16. Prohibit habitat disturbances from permitted activities (e.g., organized recreational activities requiring special use permits, drilling activities, etc.) within one-quarter mile of suitable Southwestern willow flycatcher habitat from May 1 to August 15.

17. Consider recommendations provided by the Southwestern Willow Flycatcher Recovery Plan and other applicable research in managing grazing allotments containing Southwestern willow flycatcher habitat.